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(54) SYSTEMS AND METHODS FOR FORMING METAL MATRIX COMPOSITES

(57) In certain embodiments, a method comprises placing nonconductive fibers (210) adjacent to a conductive material (220), immersing the nonconductive fibers (210) and the conductive material (220) in a plating medium (260), and applying a voltage to the conductive material (220) to initiate electroplating. The method further comprises engulfing, by electroplating, the nonconductive fibers (210) in metal to create a metal matrix composite (270).

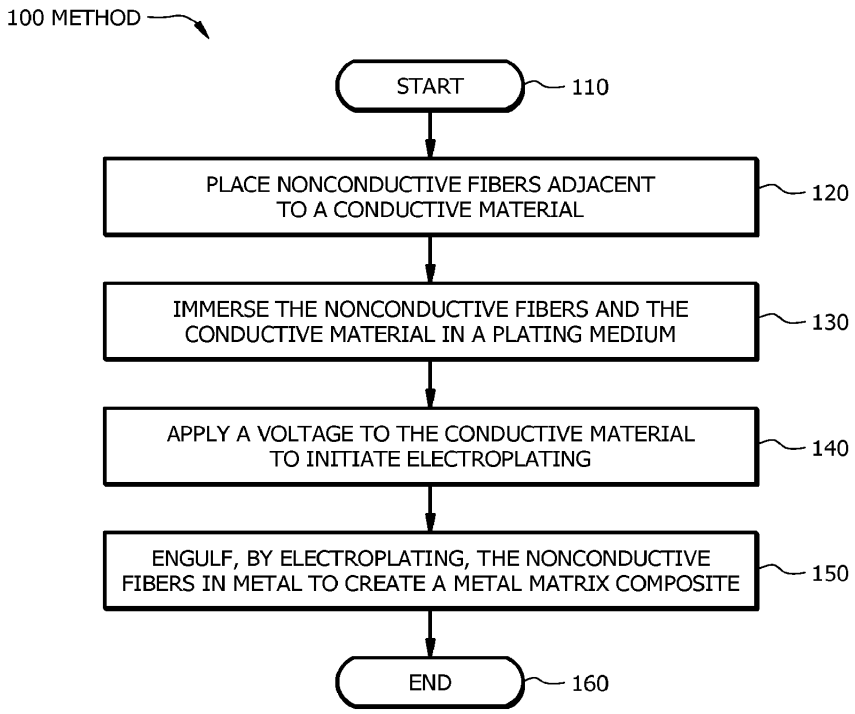

FIG. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 17 17 5968

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	JP H05 195111 A (MITSUBISHI HEAVY IND LTD) 3 August 1993 (1993-08-03) * abstract; figures 1, 2 * * paragraph [0022] * -----	1,3-5, 10,14 2,7,11	INV. C25D5/02 C25D15/00 C25D1/00 C25D1/08
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Y	GB 2 194 964 A (KERNFORSCHUNGSANLAGE JUELICH; GALVANO T ELECTROFORM PLATING) 23 March 1988 (1988-03-23) * abstract * * page 1, lines 59-70 * -----	2,11	
Y	US 2014/113088 A1 (GOERING JONATHAN [US]) 24 April 2014 (2014-04-24) * abstract * * paragraph [0006] * * paragraph [0008] * * paragraph [0017] * -----	7	

TECHNICAL FIELDS SEARCHED (IPC)

C25D

~~The present search report has been drawn up for all claims~~

Place of search	Date of completion of the search	Examiner
The Hague	31 August 2017	Telias, Gabriela

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

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Application Number
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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

7, 10, 11, 14(completely); 1-5(partially)

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

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LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 17 17 5968

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 7, 10, 11, 14(completely); 1-5(partially)

   Method to produce a metal matrix composite comprising voids. Corresponding product.

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2. claims: 6, 9, 13(completely); 1-5(partially)

   A method to form a metal matrix composite in a specific shape. Corresponding product.

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3. claims: 8, 12(completely); 1, 4, 5(partially)

   A method to join a first conductive part to a second conductive part. Corresponding product.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 17 17 5968

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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31-08-2017

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